

## 19<sup>th</sup> Annual Midwest SoTL Conference – Call for Proposals

April 6, 2018 – Indiana University South Bend

**Title:** Revising Program-Level Learning Outcomes: Methodology, Results and Lessons Learned

**Short Abstract:** The presenters developed a methodology for revising program-level learning outcomes that is efficient, effective and readily adaptable for other degrees. They will introduce their methodology, present preliminary findings, identify what worked well versus how the methodology could be improved upon in the future and offer insights into how the methodology could be used to revise learning outcomes in other disciplines.

**Preferred Presentation Format:** Concurrent Session, but also willing to do as a Poster. Least preferred is a Panel Presentation.

### **Description:**

#### Overview of the Content of the Presentation

The project proposed for presentation at the 19<sup>th</sup> Annual Midwest Conference on the Scholarship of Teaching (SoTL) combined a syllabus review, a survey of faculty members and interviews with key stakeholders to examine the existing Program-Level Outcomes (PLOs) for the B.S. in Informatics and used the results of this inquiry to revise the current PLOs, which are woefully inadequate, outdated and difficult to measure. Once the PLOs have been revised and approved, the presenters, who are the project directors, will assist faculty members in integrating the revised PLOs into syllabi for all courses that are part of the B.S. in Informatics and matching them with appropriate assessment methods to clearly demonstrate that the PLOs are being achieved as the curriculum evolves in the 21<sup>st</sup> century. The intended outcome of the project is to develop an updated and carefully considered list of Program-Level Outcomes (PLOs) for the B.S. in Informatics that is specifically tailored to this unique degree and that includes the input from faculty, administrators, career services professionals and potential employers. The project directors also hope to look forward and predict the skills and competencies that students will need, so that the revised PLOs will encompass future developments in the field rather than the current status.

In Fall semester 2016, all faculty members teaching courses in the B.S. in Informatics program were asked by the Associate Dean for Academic Affairs at the School of Informatics and Computing to add Program-Level Learning Outcomes (PLOs) to their syllabi and to tie these PLOs to specific assignments and other assessment methods in their courses.<sup>1</sup> This information was intended to complement the current syllabus requirement to match learning outcomes and assignments with the PULs.<sup>2</sup> It is likely that most faculty members did not do this because of the short timeframe and lack of understanding about the PLOs. Unfortunately, the current PLOs for the B.S. in Informatics are generic, woefully outdated, difficult to measure and have not kept up with the evolution of the fast-changing discipline of Informatics and the emerging career opportunities for people with this degree. Moreover, several of the items within the PLOs actually refer to what students will do once they complete their degrees, which the school has no control over and no way to track after graduation. One of the project directors did add information about the PLOs to her syllabus and linked them to individual assignments, but found

it frustrating because of issues with the existing PLOs. At various points over the last few years, faculty members talked about the need to revise these PLOs, but attempts to do so were barely started before more immediate concerns took precedence.

As daunting as the revision of the PLOs and alignment with courses may be for some faculty members, it is imperative in an era when a wide variety of constituents, including students, parents, potential employers, taxpayers, legislators and university trustees, want to ensure that campuses are doing what they promise to do in terms of preparing graduates for the 21<sup>st</sup> century realities of work and life.<sup>3-4</sup> Moreover, as already seen in other industries, a wide variety of technology-enabled and well-funded enterprises are making inroads into the once-secure realm of higher education, with certificates, coding camps, MOOCs and other venues providing learners with a myriad of choices to obtain the content and credentials they need. A review of the literature indicates a number of strategies for reviewing, revising and implementing program- and course-level outcomes and mapping them to the curriculum for online as well as face-to-face courses.<sup>5-11</sup>

The revision of the PLOs is essential at this point in the evolution of the School of Informatics and Computing, especially given the feedback from the Program Review team in Spring 2016. The two project directors were the most appropriate people to lead this effort, since they are the most senior faculty members in the B.S. in Informatics program and their courses are the backbone of the degree. Many of the program's courses are already online and the project directors are part of a consortium of colleagues at the regional campuses who developed a Collaborative B.S. in Informatics. As one of the first completely online degrees to be created through the IU Online initiative, the project directors are especially eager to see how the findings from their project can inform the development of this new degree.<sup>12</sup>

In order to comply with what the Associate Dean has requested, to improve the B.S. in Informatics program overall, to clearly demonstrate student learning that matches the PLOs and to plan wisely and strategically for the program in the future, the project directors devoted 2017 to a number of activities. First, they gathered and reviewed syllabi for all core courses in the B.S. in Informatics program to see which syllabi are in compliance with the request to include the PLOs and whether the PLOs are tied to specific assignments and other assessment methods. Next, they prepared and distributed a survey to faculty members teaching courses in the B.S. in Informatics program to gather their thoughts on the existing PLOs and their input on what the future PLOs should be. They interviewed the Department Chair, the school's two Career Services Professionals and two industry professionals from companies that have hired graduates of the B.S. in Informatics program to discern what the marketplace needs in the way of properly-prepared, work-ready graduates from the B.S. in Informatics program. In Spring 2018, they will analyze the results from the syllabus review, the faculty survey and the interview and develop a draft for a revised list of PLOs. Note that the current PLOs were included as part of the questions for the survey and interviews. The draft list of revised PLOs will be presented to the Informatics faculty and school administration for additional input. The project directors will assist faculty in incorporating the revised PLOs into their syllabi and in crafting linkages with assignments that will assess whether courses contribute to helping students achieve these revised PLOs. The projects directors will oversee updating the school's website and all B.S. in Informatics marketing and curriculum materials to reflect the revised PLOs. Any data sets that

can be shared will be uploaded to the IUPUI DataWorks repository<sup>13</sup> and they will upload their materials and the final report to the IUPUI ScholarWorks repository.<sup>14</sup>

The findings from the project will allow the school to produce a more comprehensive and data-driven report for the next Program Review and Assessment process for the B.S. in Informatics, which is scheduled for 2017-2018. The results will help to determine how existing courses should be modified to cover one or more of the PLOs, including assessment mechanisms, and inform the development of new courses. The revised PLOs are especially important in providing documentation for the school's recruiters, academic advisors and development staff to use in providing a clearer and more compelling picture of the emerging discipline of Informatics and the career opportunities that a B.S. degree in this field offers.

Preliminary results from the faculty survey and interviews indicate some common themes. Many of the participants expressed support for several of the existing PLOs. The challenge will be to re-write some of the existing PLOs so that they begin with action verbs (not "understand") and then determine how best to assess these PLOs through homework assignments and other program-wide measures. Although participants value the technical skills of students from the program, which are encompassed under the first PLO, they were more interested in "soft skills" such as interpersonal, written and oral communication, relationship building and networking, working in teams, project management and problem solving, to name but a few. These soft skills may be more difficult to assess than technical skills, meaning that faculty members teaching courses in the program will have to be creative in how they craft their assignments to demonstrate that student have mastered these skills. One of the interviewees indicated that even though experiential learning opportunities are available, such as internships and community-based outreach projects, students who may have deficiencies in these soft skills do not participate in these opportunities and are typically then among the small percentage of students who struggle with finding a position in the field after graduation. Additional skills that were of interest were privacy, cybersecurity, intelligent and non-traditional user interfaces and data analytics, which means that new courses may need to be developed and/or faculty members may need to integrate some of these topics into their existing courses. The challenge with the PLOs will always be to have them be forward-looking enough to reflect the fast-changing field of informatics.

#### Goals for the Session:

During the session, the presenters will:

- introduce their methodology for revising the Program-Level Learning Outcomes (PLOs)
- present their preliminary findings from the project
- identify what worked well versus what was less effective with their methodology
- provide suggestions for how their methodology could be improved upon in the future
- offer insights into how their methodology could be adapted by other disciplines to revise student learning outcomes for a wide variety of degrees and programs

## References:

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